AMENDMENTS TO THE CLAIMS

With this Amendment, no claims are amended, claims 6-12 are canceled, and new claims 13-37 are added. As of this Amendment, the status of the claims (claims 1-5 and 13-37) is as follows:

1. (Original) An isolated single or double-stranded DNA molecule which encodes a bovine adipocyte polypeptide leptin, the molecule consisting of the nucleotide sequence SEQ ID NO:3 or an allelic variant thereof.

2. (Original) An expression vector comprising the DNA molecule of claim 1.

3. (Original) The vector according to claim 2 in which the vector is a plasmid.

4. (Original) A host cell transformed or transfected with the plasmid of claim 3.

5. (Original) An isolated mRNA molecule for encoding a bovine adipocyte polypeptide leptin, the mRNA molecule encoded by the nucleotide sequence of SEQ ID NO:3 or an allelic variant thereof.

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (New) An isolated single or double-stranded DNA molecule which encodes a bovine adipocyte polypeptide leptin that hybridizes to a nucleotide sequence of SEQ ID NO: 3.

14. (New) The isolated single or double-stranded DNA molecule of claim 13 wherein the isolated DNA molecule hybridizes to at least 20 bases of the nucleotide sequence of SEQ ID NO: 3.

15. (New) The isolated single or double-stranded DNA molecule of claim 13 wherein the isolated DNA molecule hybridizes to at least 50 bases of the nucleotide sequence of SEQ ID NO: 3.

16. (New) The isolated single or double-stranded DNA molecule of claim 13 wherein the isolated DNA molecule hybridizes to substantially all of the bases of the nucleotide sequence of SEQ ID NO: 3.

17. (New) The isolated single or double-stranded DNA molecule of claim 13 wherein the isolated DNA molecule is at least 20 bases.

18. (New) The isolated single or double-stranded DNA molecule of claim 13 wherein the isolated DNA molecule is at least 50 bases.

19. (New) The isolated single or double-stranded DNA molecule of claim 1 wherein the allelic variant is capable of hybridizing to at least 20 bases of the nucleotide sequence of SEQ ID NO:3.

20. (New) The isolated single or double-stranded DNA molecule of claim 1 wherein the allelic variant is capable of hybridizing to at least 50 bases of the nucleotide sequence of SEQ ID NO:3.

21. (New) An isolated single or double-stranded DNA molecule which encodes a bovine adipocyte polypeptide leptin, the molecule consisting of the nucleotide sequence SEQ ID NO:3 or an allelic variant thereof, wherein the allelic variant is capable of hybridizing to substantially all of the nucleotide sequence of SEQ ID NO:3.

22. (New) An isolated single or double-stranded DNA molecule which encodes a bovine adipocyte polypeptide leptin, the molecule consisting of the nucleotide sequence SEQ ID NO:3 or a functional derivative thereof, wherein the DNA molecule or the functional derivative thereof hybridizes to the nucleotide sequence of SEQ ID NO:3 when placed in contact with the nucleotide sequence of SEQ ID NO:3 under hybridizing conditions.

23. (New) The isolated DNA molecule of claim 22 wherein the isolated DNA molecule or the functional derivative thereof hybridizes to substantially all of the nucleotide sequence of SEQ ID NO:3 when placed in contact with the nucleotide sequence of SEQ ID NO:3 under hybridizing conditions.

24. (New) An isolated single or double-stranded DNA molecule which encodes a bovine adipocyte polypeptide leptin, the DNA molecule consisting of the nucleotide sequence SEQ ID NO:3 or a variant thereof, wherein the DNA molecule or the variant thereof hybridizes to substantially all of the nucleotide sequence of SEQ ID NO:3 when placed in contact with the nucleotide sequence of SEQ ID NO:3 under hybridizing conditions.

25. (New) An isolated mRNA molecule which encodes a bovine adipocyte polypeptide leptin, the mRNA molecule encoded by the nucleotide sequence SEQ ID NO:3 or a variant of the mRNA molecule, wherein the mRNA molecule or the variant of the mRNA molecule hybridizes to the mRNA molecule encoded by the nucleotide sequence of SEQ ID NO:3 when placed in contact with the mRNA molecule encoded by the nucleotide sequence of SEQ ID NO:3 under hybridizing conditions.

26. (New) The isolated mRNA molecule of claim 25 wherein the mRNA molecule or the variant of the mRNA molecule hybridizes to substantially all of the mRNA molecule encoded by the nucleotide sequence of SEQ ID NO:3.

27. (New) An isolated mRNA molecule which encodes a bovine adipocyte polypeptide leptin, the mRNA molecule encoded by the nucleotide sequence SEQ ID NO:3 or a functional derivative thereof, wherein the functional derivative of the isolated mRNA molecule hybridizes to substantially all of the mRNA molecule encoded by the nucleotide sequence of SEQ ID NO:3 when placed in contact with the mRNA molecule encoded by the nucleotide sequence of SEQ ID NO:3 under hybridizing conditions.

28. (New) An isolated mRNA molecule which encodes a bovine adipocyte polypeptide leptin, the mRNA molecule encoded by the nucleotide sequence SEQ ID NO:3 or an allelic variant thereof, wherein the allelic variant hybridizes to substantially all of the mRNA molecule encoded by the nucleotide sequence of SEQ ID NO:3 when placed in contact with the mRNA molecule encoded by the nucleotide sequence of SEQ ID NO:3 under hybridizing conditions.

29. (New) An isolated mRNA molecule which encodes a bovine adipocyte polypeptide leptin, wherein the isolated mRNA molecule hybridizes to substantially all of an mRNA molecule encoded by a nucleotide sequence of SEQ ID NO:3 when placed in contact with the mRNA molecule encoded by the nucleotide sequence of SEQ ID NO:3 under hybridizing conditions.

30. (New) An isolated mRNA molecule which encodes a bovine adipocyte polypeptide leptin, wherein the isolated mRNA molecule hybridizes to an mRNA molecule encoded by a nucleotide sequence of SEQ ID NO:3 when placed in contact with the mRNA molecule encoded by the nucleotide sequence of SEQ ID NO:3 under hybridizing conditions.

31. (New) A method for detecting DNA which encodes for a bovine leptin polypeptide, the method comprising:

extracting DNA from a biological sample derived from a cow;

contacting the extracted DNA with a leptin DNA probe comprising at least 20 nucleotide bases of SEQ ID NO:1 under hybridizing conditions to form a hybridized DNA complex; and

detecting the hybridized DNA complex.

32. (New) The method of claim 31 wherein the hybridized DNA complex is isolated to form an isolated leptin DNA molecule.

33. (New) The method of claim 32 wherein the isolated leptin DNA molecule is sequenced.

34. (New) The method of claim 31 wherein the extracted DNA is amplified prior to contacting with the leptin DNA probe.

35. (New) A method for isolating DNA which encodes for a bovine leptin polypeptide, the method comprising:

obtaining bovine material comprising DNA;

contacting the bovine material with a leptin DNA probe comprising at least 50 nucleotide bases of SEQ ID NO:1 under hybridizing conditions to form a hybridized complex;

detecting the hybridized complex; and

isolating the hybridized complex.

36. (New) The method of claim 35 wherein the isolated hybridized complex is sequenced.

37. (New) A method of determining the susceptibility of cattle to fat deposition, the method comprising:

removing a biological sample from a cow;

extracting DNA from the biological sample to form an extracted DNA sample;

digesting the extracted DNA sample with at least one restriction endonuclease to form at least one digested DNA sample;

contacting the at least one digested DNA sample with a probe comprising at least 20 nucleotide bases of SEQ ID NO:1 to form at least one hybridized complex;

separating the at least one digested DNA sample and the at least one hybridized complex into a pattern of bands; and

comparing the pattern of bands to a control DNA sample of bovine leptin DNA.